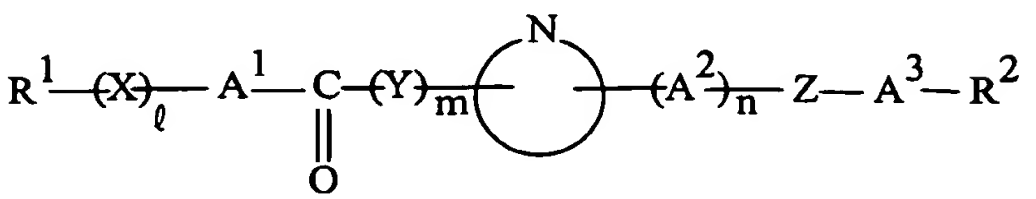
AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A compound of the formula:



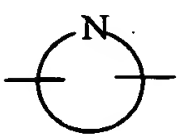
wherein R^1 is a substituted or unsubstituted N-containing cycloalkyl,

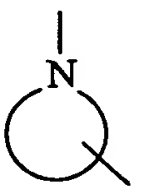
R^2 is carboxy or protected carboxy,

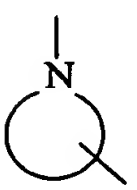
A^1 is a substituted or unsubstituted lower alkylene, a substituted or unsubstituted lower alkanyl-ylidene or a substituted or unsubstituted lower alkenylene,

A^2 is lower alkylene,

A^3 is a substituted or unsubstituted lower alkylene,

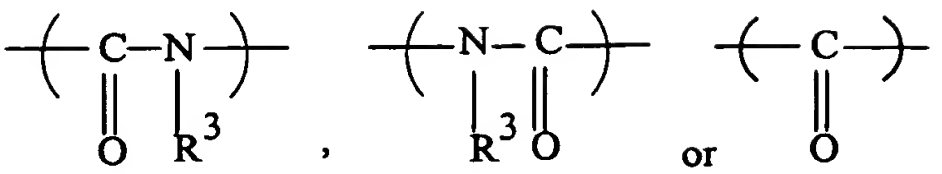
 is a group of the formula:



wherein  is a substituted or unsubstituted N-containing heterocyclic group,

X is O, S or NH,

Y is NH,

Z is  ,

wherein

R^3 is hydrogen or lower alkyl,

ℓ, m and n are each the same or a different integer of 0 or 1,

~~and~~ or a pharmaceutically acceptable salt thereof.

2. (Currently Amended) The compound of claim 1, wherein

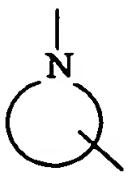
R^1 is a substituted or unsubstituted 3 to 8 membered cycloalkyl containing 1 to 3 nitrogen atom(s),

R^2 is a carboxy or an esterified carboxy,

A^1 is a substituted or unsubstituted lower alkylene, a substituted or unsubstituted lower alkanyl-ylidene or a substituted or unsubstituted lower alkenylene,

A^2 is lower alkylene,

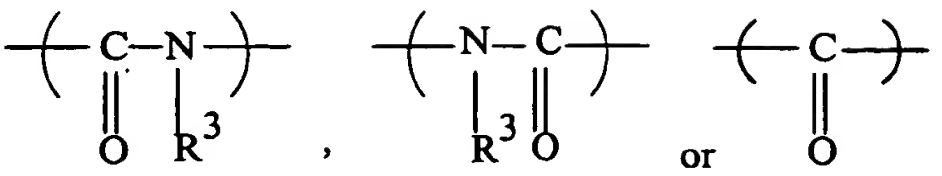
A^3 is a substituted or unsubstituted lower alkylene,



is a substituted or unsubstituted saturated 3 to 8 membered heteromonocyclic group containing 1 to 4 nitrogen atom(s), a substituted or unsubstituted unsaturated condensed heterocyclic group containing 1 to 4 nitrogen atom(s), or a substituted or unsubstituted saturated 3 to 8-membered heteromonocyclic group containing 1 to 5 carbon atom(s), 1 to 2 oxygen atom(s) and 1 to 3 nitrogen atom(s),

X is O, S, or NH,

Y is NH, and

Z is  ,

wherein

R^3 is hydrogen or lower alkyl;

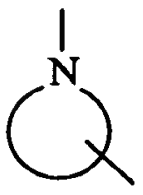
ℓ is an integer of 0 or 1,

m is an integer of 0 or 1, and

n is an integer of 0 or 1.

3. (Currently Amended) The compound of claim 2, wherein

R^1 is an unsubsituted piperidyl or a substituted piperidyl containing 1 or 2 oxo or [5-(lower) alkyl-2-oxo-1,3-dioxol-4-yl](lower)alkyl,

 is piperidyl, morpholinyl, tetrahydroquinolyl or pyrrolydinyl,

A^3 is an unsubstituted lower alkylene or a substituted lower alkylene containing 1 to 3 suitable substituent(s) selected from the group consisting of (C_1-C_6)alkyl; (C_2-C_6)alkenyl; (C_2-C_6)alkynyl; phenyl; phenyl(C_1-C_6)alkyl; phenyl(C_1-C_6)alkyl having 1 to 4 (C_1-C_6)alkoxy, halo (C_1-C_6) alkyl or (C_1-C_6)alkylene dioxy; (C_1-C_6)alkyl having unsaturated condensed heterocyclic group containing 1 to 4 nitrogen atom(s); cyano; amino; protected amino; and phenyl(C_1-C_6)alkylcarbamoyl;

R^2, R^3, A^1, A^2, X, Y or Z are each as defined in claim 2,

ℓ is an integer of 0,

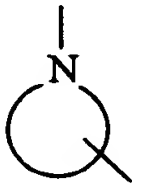
m is an integer of 0, and

n is an integer of 0.

4. (Currently Amended) The compound of claim 3,

wherein

R^1 is an unsubsituted piperidyl or a substituted piperidyl containing 1 or 2 oxo or [5-(lower)alkyl-2-oxo-1,3-dioxol-4-yl](lower)alkyl,



is piperidyl, morpholinyl, tetrahydroquinolyl or pyrrolydinyl,

A^3 is an unsubstituted lower alkylene or a substituted lower alkylene containing 1 to 3 suitable substituent(s) selected from the group consisting of $(C_1$-$C_6)$alkyl; $(C_2$-$C_6)$alkenyl; $(C_2$-$C_6)$alkynyl; phenyl; phenyl$(C_1$-$C_6)$alkyl; phenyl$(C_1$-$C_6)$alkyl having 1 to 4 $(C_1$-$C_6)$alkoxy, halo$(C_1$-$C_6)$alkyl or $(C_1$-$C_6)$alkylene dioxy; $(C_1$-$C_6)$alkyl having unsaturated condensed heterocyclic group containing 1 to 4 nitrogen atom(s); cyano; amino; $(C_1$-$C_6)$alkanoylamino; aroylamino which may have 1 to 3 hydroxy, $(C_1$-$C_6)$alkoxy, halogen or phenyl; cyclo$(C_3$-$C_6)$alkylcarbonylamino; $(C_1$-$C_6)$alkoxy$(C_1$-$C_6)$alkylcarbonylamino; $(C_2$-$C_6)$carbonylamino; $(C_1$-$C_6)$alkylsulfonylamino; phenylsulfonylamino; and phenyl$(C_1$-$C_6)$alkylcarbamoyl;

R^2, R^3, A^1, A^2, X, Y or Z are each as defined in claim 3,

ℓ is an integer of 0,

m is an integer of 0, and

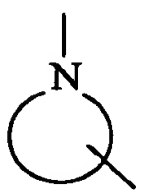
n is an integer of 0.

5. (Currently Amended) The compound of claim 4, wherein

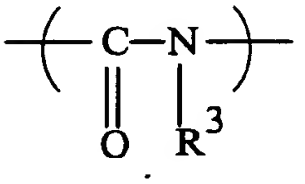
R^1 is piperidyl,

A^1 is a lower alkylene or a lower alkanyl-ylidene,

A^3 is an unsubstituted lower alkylene or a substituted lower alkylene containing a lower alkyl, a lower alkynyl or a lower alkanoylamino,



is piperidyl,

Z is  , and

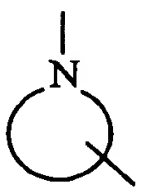
R^2, R^3, A^2, Y, ℓ, m, and n are each as defined in claim 4.

6. (Currently Amended) The compound of claim 5, wherein

R^3 is hydrogen,

A^1 is a lower alkylene,

A^3 is a lower alkylene having a lower alkanoylamino, and

R^1, A^2,  , X, Y and Z are each as defined in claim 5.

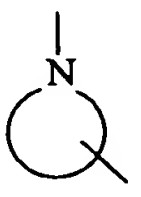
7. (Original) N-[(R)-1-{3-(4-piperidyl)propionyl}-3-piperidylcarbonyl]-2(S)-acetylamino-β-alanine or its hydrochloride.

8. (Currently Amended) The compound of claim 5, wherein

R^3 is hydrogen,

A^1 is a lower alkylene,

A^3 is a lower alkylene having a lower alkynyl, and

R^1, R^2, A^2, 

, X, Y, Z, ℓ, m and n are each as defined in claim 5.

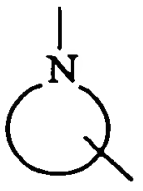
9. (Original) N-[(R)-1-{3-(4-piperidyl)propionyl}-3-piperidylcarbonyl]-3(S)-ethynyl-β-alanine.

10. (Currently Amended) The compound of claim 4, wherein

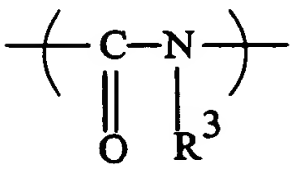
R^1 is piperidyl,

A^1 is a lower alkylene or a lower alkanylylidene,

A^3 is an unsubstituted lower alkylene or a substituted lower alkylene containing a lower alkyl, a lower alkynyl or a lower alkanoylamino,



is morpholinyl,

Z is  ,

and

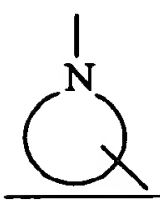
R^2, R^3, A^2, Y, ℓ, m and n are each as defined in claim 4.

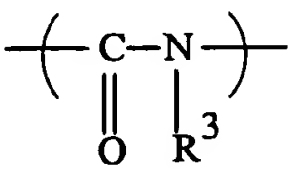
11. (Currently Amended): A compound of claim 10 ~~5~~, wherein

R^1 is piperidyl,

A^1 is a lower alkylene,

A^3 is a lower alkylene,

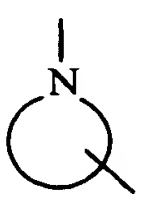
 is piperidyl,

Z is  ,

R^3 is hydrogen,

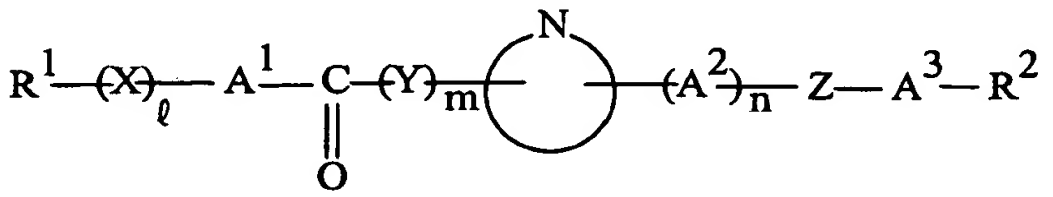
~~A^1 is lower alkylene,~~

~~A^3 is lower alkylene,~~ and

R^1, A^2,  , X, Y and Z are each as defined in claim 10.

12. (Original) N-[4-{3-(4-piperidyl)propionyl)-2-morpholinylcarbonyl}-β-alanine or its hydrochloride.

13. (Currently Amended) A process for preparing a compound of the formula:



wherein

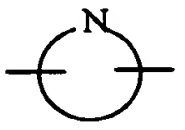
R^1 is a substituted or unsubstituted N-containing cycloalkyl,

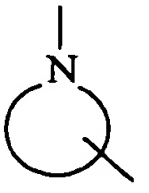
R^2 is a carboxy or a protected carboxy,

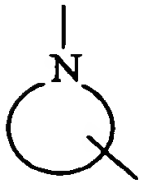
A^1 is a substituted or unsubstituted lower alkylene, a substituted or unsubstituted lower alkanyl-ylidene or a substituted or unsubstituted lower alkenylene,

A^2 is a lower alkylene,

A^3 is a substituted or unsubstituted lower alkylene,

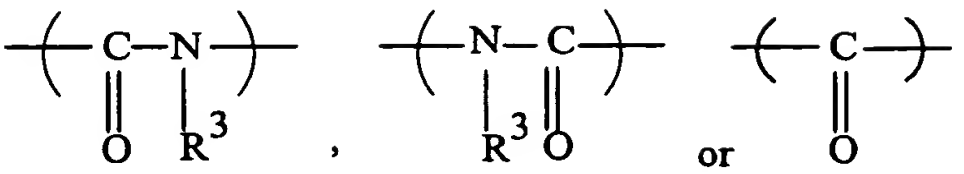
 is a group of the formula:



wherein  is a substituted or unsubstituted N-containing heterocyclic group,

X is O, S or NH,

Y is NH,

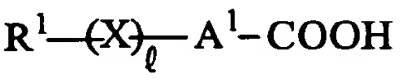
Z is  ,

(wherein R^3 is hydrogen or lower alkyl), and

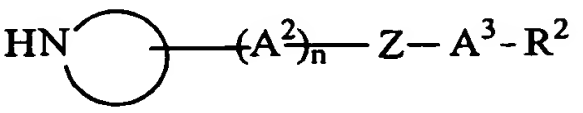
ℓ, m and n are each the same or a different integer of 0 or 1,

or a salt thereof, which comprises:

(i) reacting a compound of the formula

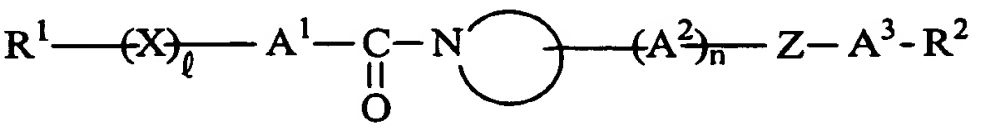


wherein R^1, A^1, X and ℓ are each as defined above, or its reactive derivative at the carboxy group or a salt thereof, with a compound of the formula:



wherein R^2, A^2, A^3,  , Z and n are each as defined above,

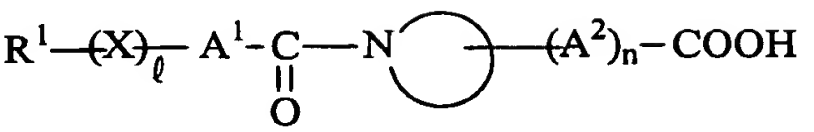
or its reactive derivative at the amino group or a salt thereof, to give a compound of the formula:



wherein R^1, R^2, A^1, A^2,  , X, Z, ℓ and n are each as defined above,

or a salt thereof, or

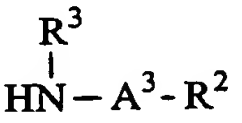
(ii) reacting a compound of the formula:



wherein R^1, R^2, A^1, A^2,  , X, ℓ and n are each as defined above,

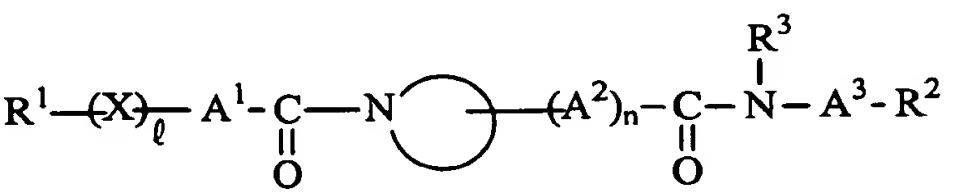
or its reactive derivative at the carboxy group

or a salt thereof, with a compound of the formula:



wherein R^2, R^3 and A^3 are each as defined above, or its reactive derivative at the amino group

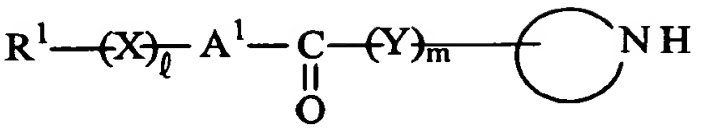
or a salt thereof, to give a compound of the formula:



wherein R^1, R^2, R^3, A^1, A^2, A^3,  , X, ℓ and n are each as defined above,

or a salt thereof, or

(iii) reacting a compound of the formula:

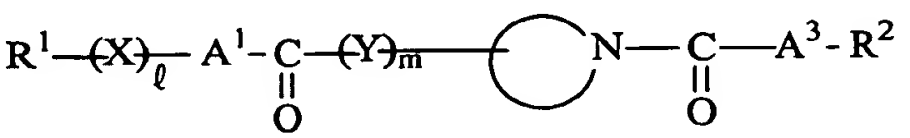


wherein R^1, A^1,  , X, Y, ℓ and m are each as defined above, or its reactive derivative at the amino group or a salt thereof, with a compound of the formula

$$R^2\text{-}A^3\text{-}COOH$$

wherein R^2 and A^3 are each as defined above,

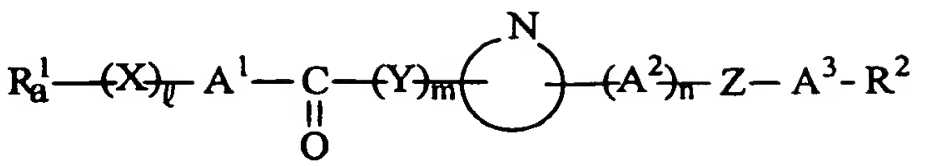
or its reactive derivative at the carboxy group or a salt thereof, to give a compound of the formula:

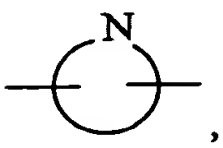


wherein R^1, R^2, A^1, A^3,  , X, Y, Q and m are each as defined above,

or a salt thereof, or

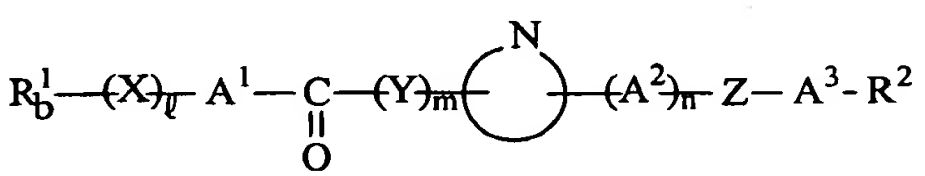
(iv) subjecting a compound of the formula:

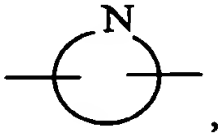


wherein R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are each as defined above, and

$R^1{}_a$ is a substituted or unsubstituted N-containing cycloalkyl having amino protective group,

or a salt thereof, to elimination reaction of the amino protective group, to give a compound of the formula:

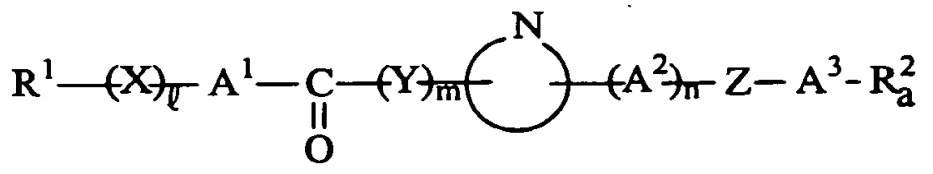


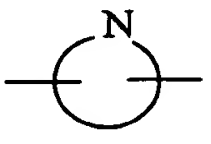
wherein R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are each as defined above, and

$R^1{}_b$ is a substituted or unsubstituted N-containing cycloalkyl,

or a salt thereof, or

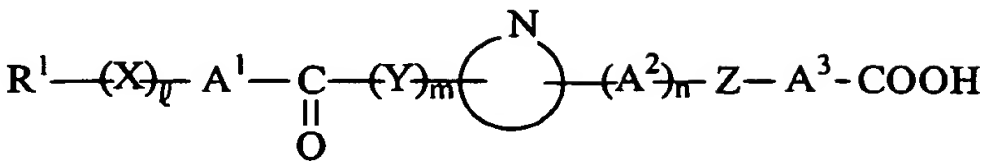
(v) subjecting a compound of the formula:

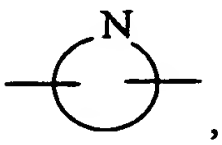


wherein R^1, A^1, A^2, A^3,  , X , Y, Z , ℓ , m and n are each as defined above, and

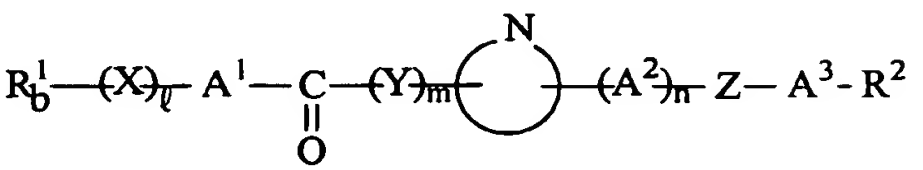
$R^2{}_a$ is protected carboxy, or a salt thereof, to elimination reaction of carboxy protective group,

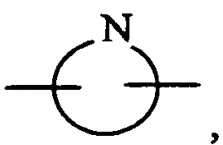
to give a compound of the formula:



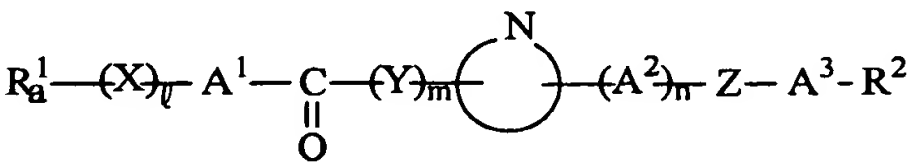
wherein R^1, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are each as defined above, or a salt thereof, or

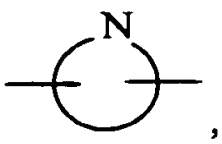
(vi) subjecting a compound of the formula:



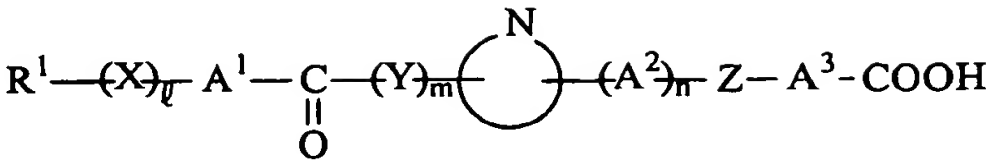
wherein R^2 A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are each as defined above, and $R^1{}_b$ is a substituted or unsubstituted N-containing cycloalkyl,

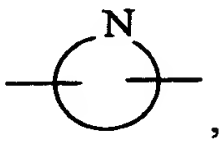
or a salt thereof, to protecting reaction of amino, to give a compound of the formula:

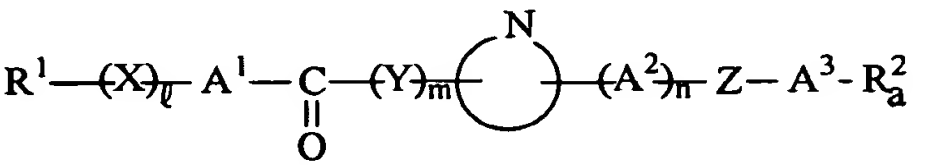


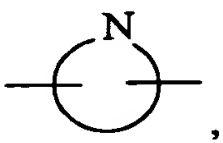
wherein R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are each as defined above, and $R^1{}_a$ is a substituted or unsubstituted N-containing cycloalkyl having amino protecting group, or a salt thereof, or

(vii) subjecting a compound of the formula:

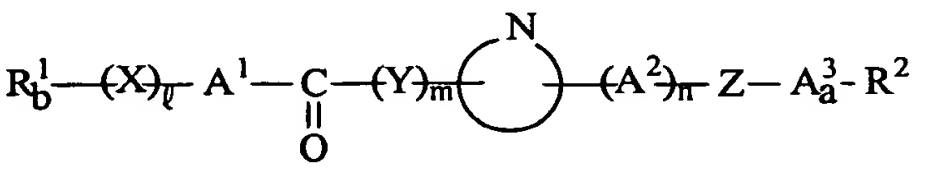


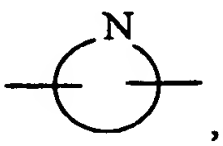
wherein R^1, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are each as defined above, or its reactive derivative at the carboxy group or a salt thereof, to protecting reaction of the carboxy, to give a compound of the formula:

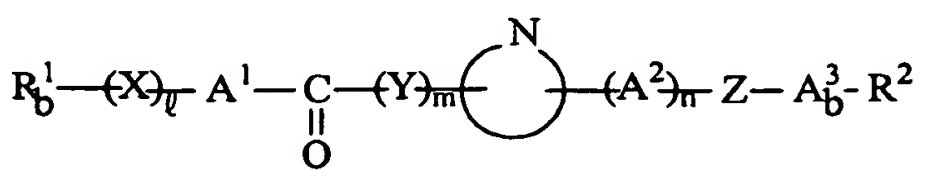


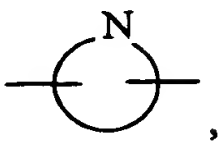
wherein R^1, A^1, A^2 A^3,  , X, Y, Z , ℓ, m and n are each as defined above, and $R^2{}_a$ is a protected carboxy, or a salt thereof, or

(viii) subjecting a compound of the formula:

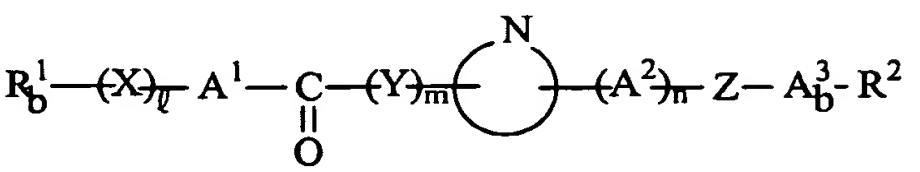


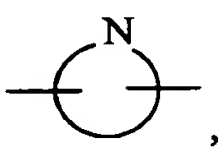
wherein $R^1{}_b$, R^2, A^1, A^2,  , X, Y, Z, ℓ, m and n are each as defined above, and $A^3{}_a$ is lower alkylene having protected amino or a salt thereof, to elimination reaction of amino protective group, to give a compound of the formula:

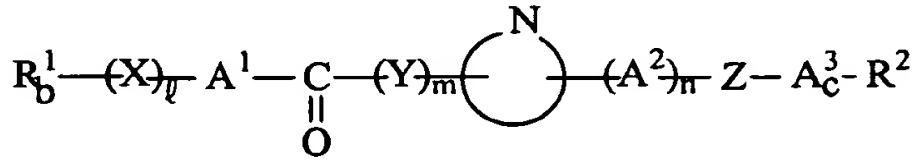


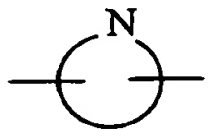
wherein R^1_b, R^2, A^1, A^2,  , X, Y, Z, ℓ, m and n are each as defined above, and A^3_b is a lower alkylene having an amino or a salt thereof, or

(ix) subjecting a compound of the formula:



wherein R^1_b, R^2, A^1, A^2,  , X, Y, Z, ℓ, m and n are each as defined above, and A^3_b is lower alkylene having amino, or a salt thereof, to acylation reaction of amino, to give a compound of formula:



wherein R^1_b, R^2, A^1, A^2,  , X, Y, Z, ℓ, m and n are each as defined above, and A^3_c is lower alkylene having acylamino, or a salt thereof.

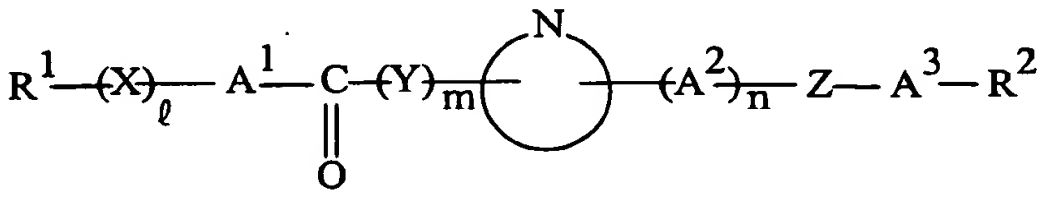
14. (Currently Amended) A pharmaceutical composition which comprises, as an active ingredient, at least one compound of claim 1 or a pharmaceutically acceptable salt thereof in admixture with a pharmaceutically acceptable carriers or excipients.

15. (Canceled).

16. (Currently Amended) ~~The~~ A composition comprising the compound of claim 1, or a pharmaceutically acceptable salt thereof, ~~wherein said compound or pharmaceutically acceptable salt thereof is admixed with~~ and a pharmaceutically suitable carrier.

17. (Previously Presented) A method for the treatment of diseases caused by thrombus formation; restenosis or reocclusion; the thrombus formation in case of vascular surgery, valve replacement, extracorporeal circulation or transplantation; disseminated intravascular coagulation; thrombotic thrombocytopenic; essential thrombocytosis; inflammation; or for the adjuvant therapy with thrombolytic drug or anticoagulant; which comprises administering a compound of claim 1 or a pharmaceutically acceptable salt thereof to a human being or an animal.

18. (Previously Presented) A compound of the formula:



wherein:

R^1 is a 6-membered cyclo(lower)alkyl containing 1 to 3 nitrogen atoms which may have one or more amino protective groups;

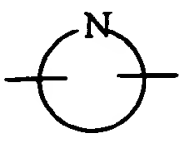
X is O, S or NH, and

ℓ is an integer of either 0 or 1;

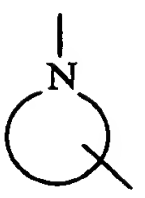
A^1 is a substituted or unsubstituted lower alkylene, a substituted or unsubstituted lower alkenylene or a substituted or unsubstituted lower alkanyl-ylidene;

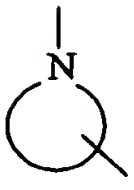
Y is NH, and

m is an integer of either 0 or 1;



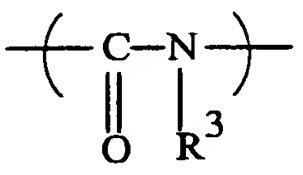
is a group of the formula:

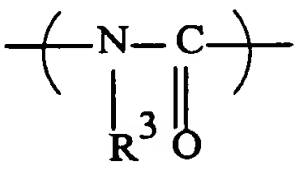


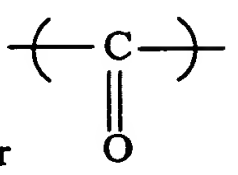
wherein 

is a substituted or unsubstituted 5 or 6-membered N-containing heterocyclic group containing 1 to 3 nitrogen atoms;

A^2 is a lower alkylene, and n is an integer of either 0 or 1;

Z is 

, 

or 

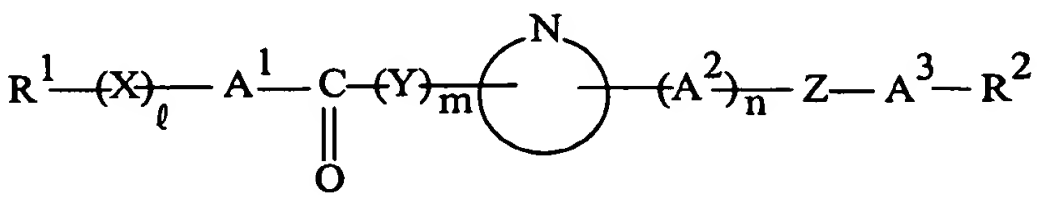
wherein R^3 is hydrogen or a lower alkyl;

A^3 is a substituted or unsubstituted lower alkylene;

and R^2 is a carboxy or a protected carboxy;

or a pharmaceutically acceptable salt thereof.

19. (Previously Presented): A compound comprising the following structure:



wherein

R^1 is piperidyl, or piperidyl with one acyl;

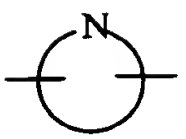
X is O, S or NH, and

ℓ is an integer of 0;

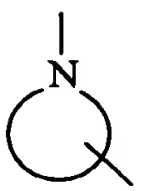
A^1 is ethylene;

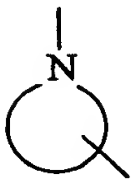
Y is NH, and

m is an integer of 0;



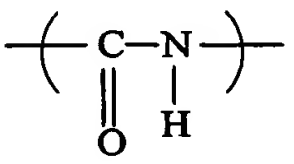
is a group of the formula:



wherein  is piperidyl;

A^2 is a lower alkylene, and

n is an integer of 0;

Z is  ,

wherein R^3 is hydrogen or a lower alkyl;

A^3 is ethylene, trimethylene or tetramethylene, each of which has one substituent selected from the group consisting of aryl, aryl(lower)alkyl and a heterocyclic group; and

and

R^2 is a carboxy or a protected carboxy;

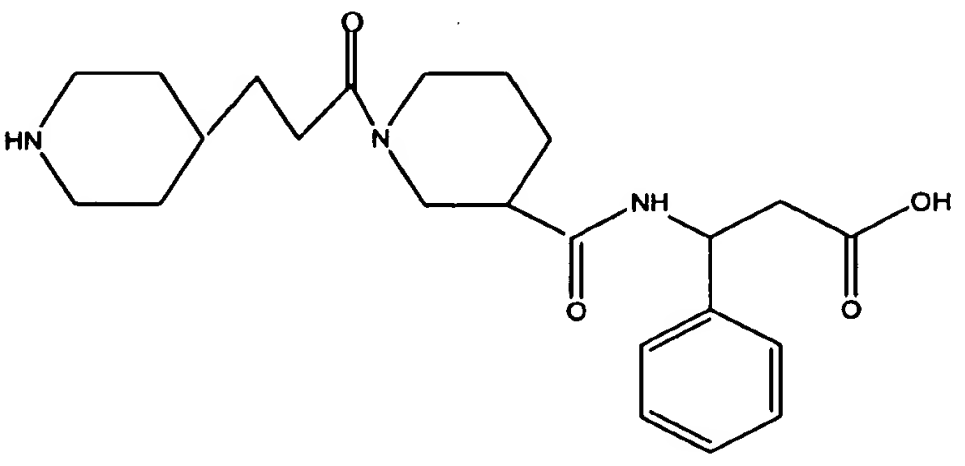
or a pharmaceutically acceptable salt thereof.

20. (Previously Presented): The compound of Claim 19, wherein

R^1 is 4-piperidyl; and

A^3 is ethylene, trimethylene or tetramethylene, each of which has one substituent selected from the group consisting of phenyl, pyridyl, and quinolyl.

21. (Currently Amended) The compound of Claim 20, which is N-[(R)-1-{3-(4-piperidyl)propionyl}-3-piperidyl-carbonyl]-3-phenyl-□-alanine or its acid addition salt ~~of~~ or a compound of the formula:



or its acid addition salt.

22. (Currently Amended) A method of producing a medicament, comprising mixing the compound of claim 1 or a pharmaceutically acceptable salt thereof with at least one pharmaceutically suitable carrier or excipient.

23-24. (Cancelled)

25. (Previously Presented) The compound of claim 16, wherein said compound is N-[(R)-1-{3-(4-piperidyl)propionyl}-3-piperidylcarbonyl]-β-alanine hydrochloride.

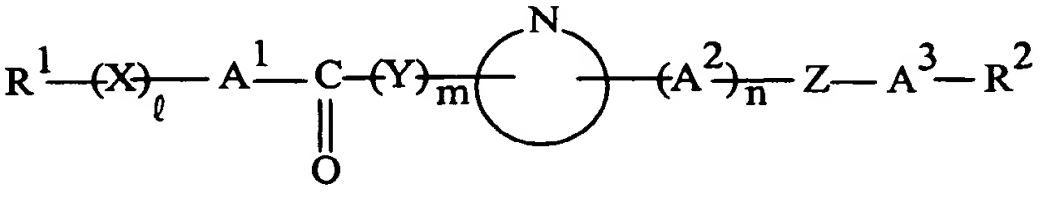
26. (Previously Presented) The method of claim 17, wherein said compound is N-[(R)-1-{3-(4-piperidyl)propionyl}-3-piperidylcarbonyl]-β-alanine hydrochloride.

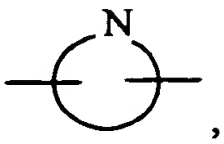
27. (Previously Presented) The method of claim 22, wherein said compound is N-[(R)-1-{3-(4-piperidyl)propionyl}-3-piperidylcarbonyl]-β-alanine hydrochloride.

28. (Cancelled)

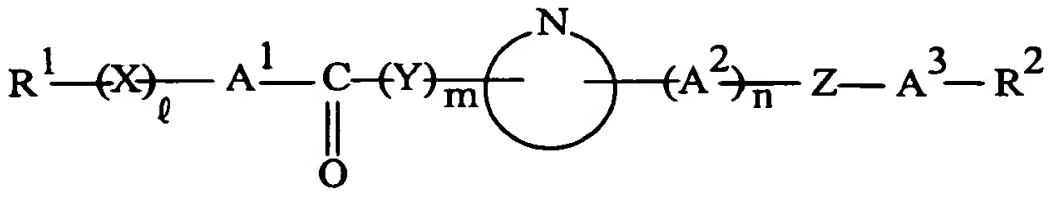
29. (Previously Presented) N-[(R)-1-{3-(4-piperidyl)propionyl}-3-piperidylcarbonyl]-β-alanine or its hydrochloride.

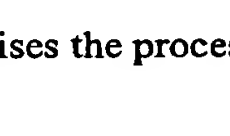
30. (Previously Presented) The process of claim 13 for preparing a compound of the formula:



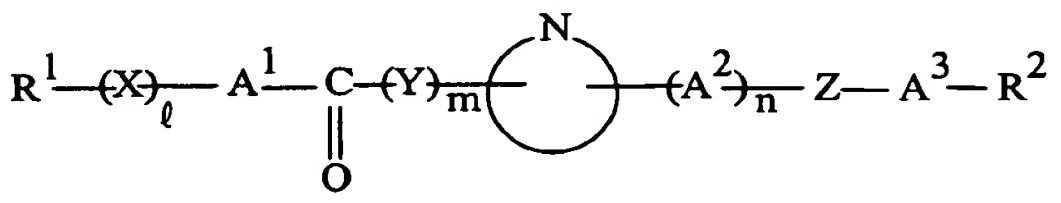
wherein R^1, R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are as defined in claim 13, wherein said process comprises the process defined in section (i) of claim 13.

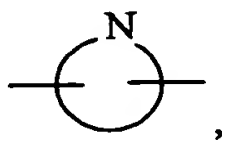
31. (Previously Presented) The process of claim 13 for preparing a compound of the formula:



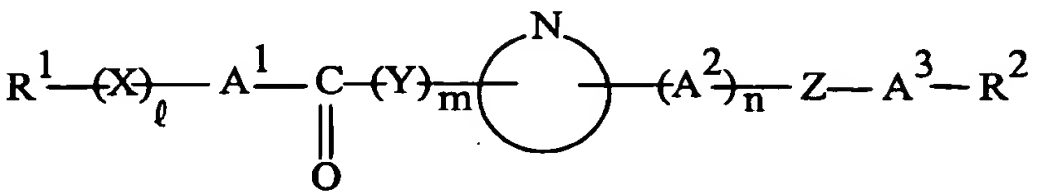
wherein R^1, R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are as defined in claim 13, wherein said process comprises the process defined in section (ii) of claim 13.

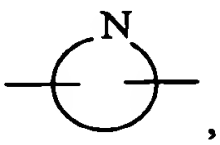
32. (Previously Presented) The process of claim 13 for preparing a compound of the formula:



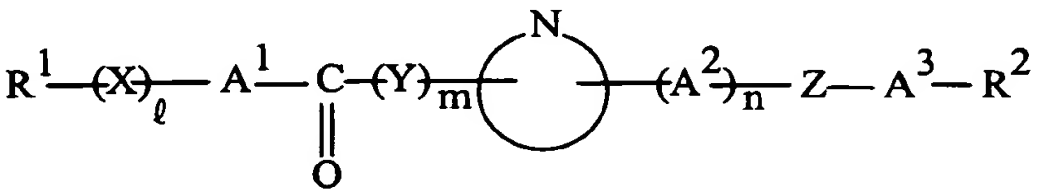
wherein R^1, R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are as defined in claim 13, wherein said process comprises the process defined in section (iii) of claim 13.

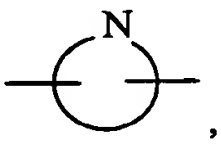
33. (Previously Presented) The process of claim 13 for preparing a compound of the formula:



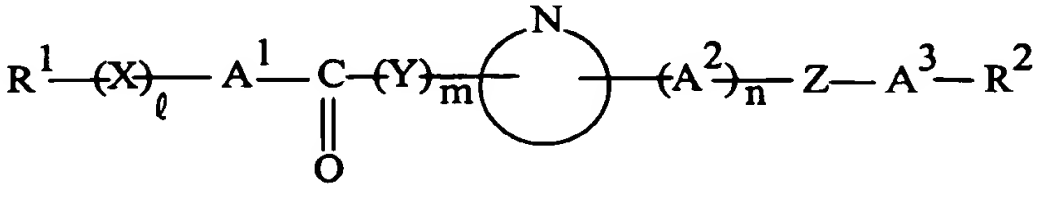
wherein R^1, R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are as defined in claim 13, wherein said process comprises the process defined in section (iv) of claim 13.

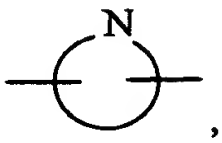
34. (Previously Presented) The process of claim 13 for preparing a compound of the formula:



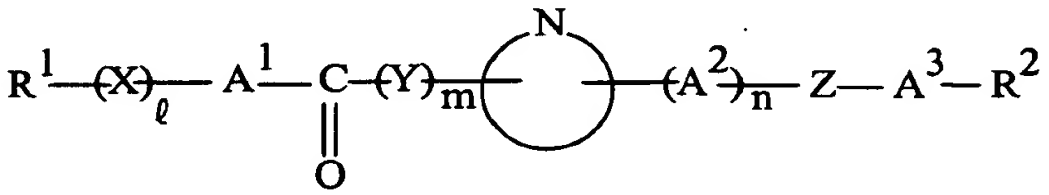
wherein R^1, R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are as defined in claim 13, wherein said process comprises the process defined in section (v) of claim 13.

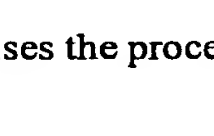
35. (Previously Presented) The process of claim 13 for preparing a compound of the formula:



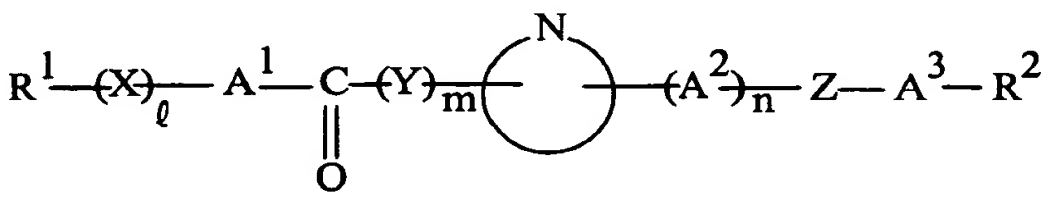
wherein R^1, R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are as defined in claim 13, wherein said process comprises the process defined in section (vi) of claim 13.

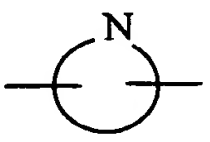
36. (Previously Presented) The process of claim 13 for preparing a compound of the formula:



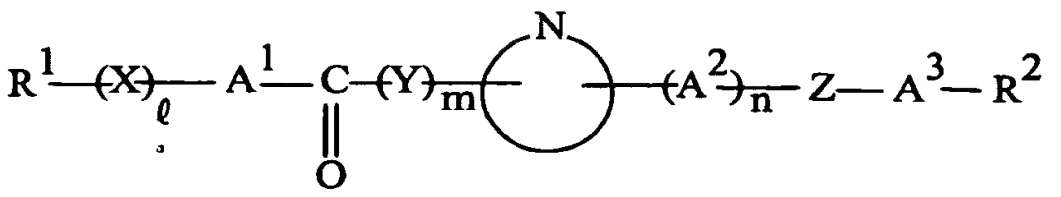
wherein R^1, R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are as defined in claim 13, wherein said process comprises the process defined in section (vii) of claim 13.

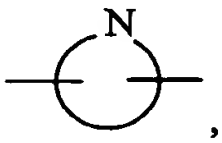
37. (Previously Presented) The process of claim 13 for preparing a compound of the formula:



wherein R^1, R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are as defined in claim 13, wherein said process comprises the process defined in section (viii) of claim 13.

38. (Previously Presented) The process of claim 13 for preparing a compound of the formula:



wherein R^1, R^2, A^1, A^2, A^3,  , X, Y, Z, ℓ, m and n are as defined in claim 13, wherein said process comprises the process defined in section (ix) of claim 13.

39. (Currently Amended) ~~The~~ A composition comprising the compound of ~~C~~claim 1~~, wherein said compound is isolated~~.

40. (Currently Amended) ~~The~~ A composition comprising a reaction mixture containing the compound of ~~C~~claim 1~~, wherein said compound is purified~~.

41. (Currently Amended) ~~The~~ A composition comprising the compound of ~~C~~claim 1 in combination with one or more pharmaceutically acceptable carriers or excipients~~, wherein said compound is chemically synthesized~~.

42. (Currently Amended) The compound of ~~C~~claim 1, wherein R^1 is selected from the group consisting of azetidinyl, pyrrolidinyl, piperidyl, piperazinyl, morpholinyl, and quinolinyl.

43. (Currently Amended) The process of ~~C~~claim 13, wherein R^1 is selected from the group consisting of azetidinyl, pyrrolidinyl, piperidyl, piperazinyl, morpholinyl, and quinolinyl.

44. (Currently Amended) The compound of ~~C~~claim 18, wherein R^1 is selected from the group consisting of azetidinyl, pyrrolidinyl, piperidyl, piperazinyl, morpholinyl, and quinolinyl.

45. (Currently Amended) ~~The~~ A composition comprising the compound of ~~C~~claim 18 ~~, wherein said compound is isolated~~.

46. (Currently Amended) ~~The~~ A composition comprising a reaction mixture containing the compound of ~~C~~claim 18~~, wherein said compound is purified~~.

47. (Currently Amended) ~~The~~ A composition comprising an isolated or purified compound of ~~C~~claim 18 in combination with one or more pharmaceutically acceptable carriers or excipients~~, wherein said compound is chemically synthesized~~.